Fixing and Staining Nuclei.—The following methods have been found to give excellent results in the study of nuclei. The observations were chiefly made with the mother-cells of the spermatozoids of various ferns, but the nuclei of vegetative cells also gave very instructive preparations. In order to fix the nuclei, the prothallia were placed in aqueous solutions of chromic or picric acid or corrosive sublimate. The chromic acid solution should be a 1 per cent. solution; the others concentrated. In these solutions they should remain from one to two hours, though in the corrosive sublimate solution less time is required. The chromic and picric acid preparations must be washed in several waters before staining. It has been found a good plan to leave them over night in abundant fresh water before the final washing.

The sublimate preparations may be transferred to absolute alcohol, in which they should remain several hours.

The specimens are now ready for staining. The best results were obtained with hæmatoxylin and gold chloride. The secret of good hæmatoxylin staining is to use a very dilute solution—three or four drops of the prepared solution in a watch-glass full of distilled water—and to allow the specimens to remain in this for at least twenty-four hours. Strasburger is especially emphatic upon these points.

After taking the specimens from the hæmatoxylin solution, they must be passed successively through 50 per cent., 70 per cent. and absolute alcohol before mounting. Half an hour is usually sufficient for each of the alcohols. For immediate examination they may be mounted in glycerine, but for permanent preparations first in origanum oil, and then transferred to Canada balsam (dissolved in chloroform).

The gold chloride method is simpler, and I have found it to answer admirably for specimens fixed in picric or chromic acid; but with those fixed with corrosive sublimate or alcohol it has not answered so well.

A few drops of 1 per cent. gold chloride in water are placed in a watch glass almost half filled with distilled water, and the specimens are allowed to remain from one-half to one hour, the solution being kept in the dark. Strasburger recommends a trace of HCl, but with the picric and chromic acid preparations, although thoroughly washed, I found this unnecessary. The specimens are then thoroughly washed, being at the same time exposed to the light and finally mounted in glycerine. With alcoholic material hæmatoxylin was found to give the best results.

The above notes embody nothing especially new, but may be useful as a memorandum of work actually done.—DOUGLAS H. CAMPBELL, *Bonn*.

A Useful Artificial Light.—The following apparatus, recommended by Strasburger, has been found very useful in dark weather, and of course can be used at night: A glass globe about six inches in diameter is filled with a very dilute solution of ammoniated copper oxide, and suspended between a large Argand burner (gas or oil) and the microscope. The